

Book review

TURLAND N. 2013. *The Code Decoded. A user's guide to the International Code of Nomenclature for algae, fungi, and plants. (Regnum Vegetabile volume 155).* 169 pp. Koeltz Scientific Books, Königstein. ISBN 978-3-87429-433-1 [Price 43 EUR]

Biological nomenclature is not seldom considered from two extreme points of view: either as an unnecessary complication of supposedly simple matters (this point of view often being coupled with a generalised contempt for taxonomy), or as a set of extremely complicated, nearly esoteric rules that cannot be understood by an ordinary 'user' but for which the opinion of a specialised guru must always be sought. This manual written by Nicholas Turland aptly shows that neither is true: scientific communication requires a "universally understood, precise, and stable system of naming" (p. 7), but most cases are governed by a limited set of relatively simple rules. The objective of the author was to write an intermediate-level manual, so the reader is presumed to possess a general background in the biological sciences. This is a wise choice; an introduction explaining very basic terms would be of interest to few (how many non-biologists could be interested in biological nomenclature?); on the other hand, very complicated cases nearly always require the opinion of (several) specialists and cannot be solved by just using a manual.

This new manual is all the more important in that in 2012 the botanical *Code* underwent several modifications, including the title (formerly *International Code of Botanical Nomenclature*; now *International Code of Nomenclature for algae, fungi, and plants*).

The book is composed of 15 chapters, a list of Latin words and abbreviations, and several indexes. The introductory Chapter 1 explains the basics, like the necessity of a formal nomenclatural system, but also some fairly new issues related to alternative nomenclatural codes: the *Draft Biocode* and the *Phylocode*. Turland's concise and strong explanation (p. 10) is worth quoting: "The rules of the *Code* [the *International Code of Nomenclature for algae, fungi and plants* – ATH] ... are voluntarily followed with an international consensus. ... Plant names published in compliance with these rules can achieve international acceptance. Names published under alternative sets of rules might gain acceptance among the particular groups of scientists ... but will not be accepted by the international scientific community." This is especially important for palaeobotanists, because several plant groups of evolutionary significance were described by

proponents of cladistic methodology and 'formalised under the *Phylocode*', which means that, as a matter of fact, at least some of them are not validly published from the point of view of the (Linnaean) *Code* even if widely used by both cladists and non-cladists.

Chapter 2 is a glossary of basic concepts and terms, in which several important distinctions are commented, like that between a taxon and a name (p. 13), effective and valid publication, homonyms and isonyms, and so on. The explanations are concise and clear, yet I would like to suggest that the notion of a 'duplicate', used later when dealing with typification, is not self-evident and should perhaps receive an entry as well. 'Diagnosis' is defined correctly, but the discussion that follows may be misleading to novices. Turland says (p. 16) that "«petals white ...» is a description, whereas «differing from species *x* by having petals white ...» is a diagnosis". This is certainly true, but it may give the impression that a so-called 'differential diagnosis' is the only correct way of making a diagnosis. The classical (Linnaean) way of making a diagnosis is *per genus et differentiam specificam* and not by direct comparison with related species. Both are correct, but I remember an influential editor-in-chief who was convinced that only the former way of doing it was allowed and insisted on diagnoses being rewritten in all manuscripts submitted to the review. A short discussion of how a diagnosis may be written would be helpful in solving such controversies.

Chapter 3 presents the general structure of the *Code* and Chapter 4 deals with media for publication. This is important, as electronic publication of nomenclatural novelties has been permitted since 2012. Chapter 5, entitled "How to publish a new name", is a practical guide, with analyses of several modern protologues and a summary of basic rules of Latin grammar. Chapter 6, "How to find the correct name for a taxon", includes analyses of old protologues (18th and 19th centuries). Chapter 7 tells "how to designate a type". All this is explained simply and in reasonable detail. However, I must admit that the following obvious question occurred to me and I was not able to find any explanation: up to 2012, diagnoses of new plant taxa were to be made in Latin, but the usual practice was to give them twice (with an unofficial English translation). Now both Latin and English texts of a diagnosis have official status, so which one takes precedence if it turns out that in a newly published text they do not correspond?

Chapter 8 is devoted to "Conservation, rejection, suppressed works, and binding decisions". It contains an explanation of the contents of the eight appendices to the *Code*. A table somewhat earlier in the text (p. 42) gives the nine traditional angiosperm family

names (*Compositae*, *Cruciferae*, etc.) that remain in use. I think it is important because I have often heard the false yet quite common opinion that non-typified family names are no longer correct and must always be replaced by their typified equivalent (*Asteraceae*, *Brassicaceae*, etc.). The object of Chapter 9 is to show “how to cite authors of plant names”, and that of chapter 10 is to tell “how to spell plant names”.

Fossil plant nomenclature is dealt with in a section of Chapter 11. Turland briefly summarises the implications of abandoning the concept of morphotaxa and replacing them with fossil-taxa. The difference consists in the circumscription of a fossil-taxon (e.g. a fossil-species) being not limited to the part of the plant on which it has been initially defined. Thus, unlike in the case of morphotaxa (e.g. morphospecies), a taxonomical decision to unite two different fossil-taxa may or may not be made by a palaeobotanist. Otherwise purely nomenclatural (and thus compulsory) acts would have to be made instead of taxonomic decisions. Turland also reminds us that the names of fossil fungi must be registered according to the procedure in force for living fungi since 2013.

Chapter 12 summarises important dates in the *Code*, beginning with the self-evident 1st May 1753 and continuing, for example, through 4th August 1789 (among others, the nomenclatural starting point for *Sphagnaceae*), 31st December 1820 (nomenclatural starting point for fossils), 1st January 1958 (after that date, the requirement to publish the type of a new taxon at the rank of genus and below), to finish with 1st January 2013 (after that date, the requirement to register names of fungi). This is very well done and particularly useful.

Chapter 13 describes the procedures for changing the *Code*, Chapter 14 is “a very brief history of the Code”, and Chapter 15 gives a short list of “resources for biological nomenclature” (books, journals, online material).

A most useful table is given on page 11. It compares the terms used to describe analogous situations under different codes: for example, ‘validly published’ in botany is ‘available’ in zoology, whereas the zoological ‘valid’ corresponds to the botanical ‘correct’. It is a pity that this comparison was not pursued further. For example, Turland is right to say that ‘paralecotype’ is an unofficial term and should not be used (p. 62), but it would be more explanatory to say that in zoology, when a lectotype is designated out of a series of syntypes, all the remaining syntypes automatically become paralectotypes; in botany no such procedure exists.

Such matters are perhaps of little interest to neobotanists usually publishing in specialised journals, the editors of which are familiar with the botanical *Code*. Palaeobotanists, in contrast, often publish in general palaeontological journals, the editors of which are frequently more familiar with the zoological Code, arguably because it is less complicated. A very silly example of a difference is that in botany all taxon

names are customarily italicised (p. 43), whereas under the zoological Code the rule is compulsory: genera and species are italicised, but higher taxa are not. Turland is thus wrong to write ‘*Microsporidia*’ (p. 112); it should be ‘Microsporidia’ instead.

In a summary of the practice of publishing new names, Turland states that “it will likely be a matter of editorial policy whether you include a description or a diagnosis, or both, and whether you use Latin or English, or both” (p. 35). I am afraid I can only disagree with that. For example, protologues of apomictic microspecies most often are descriptions without diagnoses, arguably because botanists do not want to select characters to be judged diagnostic. This is a taxonomic decision (whether good or bad) and not an editorial matter.

An explanation is given on the complications arising from blue-green algae nomenclature being covered by both the botanical and the prokaryotic Codes (p. 113). In my opinion, however, the question of which code governs the nomenclature of which organisms should be explained in more detail. The botanical *Code* is said to apply to (among others) “photosynthetic protists with their taxonomically related non-photosynthetic groups”, whereas the zoological Code covers “the nomenclature of animals (including *Microsporidia*)” (p. 112). In contemporary biology, it should be borne in mind, the term ‘animals’ means only Metazoa, whereas ciliates, foraminiferans, amoebae, and so on are not animals but various ‘protists’. Perhaps a detailed list of non-photosynthetic relatives of photosynthetic groups covered by the botanical *Code*, on the one hand, and of non-photosynthetic protists to be treated under the zoological Code, on the other, would be of use.

It is the unpleasant duty of this reviewer to point out that the analyses of old protologues (pp. 32–33) contain Latin grammar errors. For example, the abbreviated text “v. s. comm.” should not be read as “vide siccam communicavit” but as “vidi siccam communicatam”. This is a bit unfortunate for a manual of nomenclature.

A reviewer must stress the imperfections of a book more than its merits, but I would not like my reservations to give the impression that *The Code Decoded* is a bad book. On the contrary: I have had much pleasure in reading it and, despite being a practising taxonomist for more than a decade, I have learnt much thanks to it. It is a very well written book on a particularly important subject and most certainly a must-have for the library of any botanical institution. No doubt quite a few plant taxonomists will want to have a copy of their own. A cheaper paperback edition for students probably would sell very well too.

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